REMARKS

Claims 1-16, 24, 26, 28 and 30-34 are pending in the present application. Claims 1, 5, 9 and 13 have been amended.

Claim Rejections-35 U.S.C. 103

Claims 1, 3, 5, 7, 9, 11, 13, 15, 24, 26, 28 and 30-34 have been rejected under 35 U.S.C. 103(a) as being unpatentable over the Imai reference (U.S. Patent No. 6,344,675), in view of the Mineji reference (U.S. Patent No. 5,807,770). This rejection, insofar as it may pertain to the presently pending claims, is traversed for the following reasons.

Regarding claim 3, the field effect transistor features in combination "the cobalt silicide layers are composed of cobalt and silicon, wherein a ratio of cobalt to silicon is 1 to α ($1<\alpha<2$)". Applicants respectfully submit that the prior art as relied upon by the Examiner does not make obvious these features.

The Examiner has acknowledged that the primarily relied upon Imai reference does not teach a ratio of cobalt to silicon that is 1 to α ($1<\alpha<2$). In an effort to overcome this acknowledged deficiency of the Imai reference, the Examiner has relied upon the Mineji reference which teaches a MOSFET-SOI device including a pair of metallic silicide layers 10A and 10B as illustrated in Figs. 3A – 3G and 6A – 6B; wherein the metallic silicide layer is a rich metallic silicide layer of the formula M_5Si_3. The Examiner has relied upon column 10, lines 30-38 of the Mineji reference to assert that a refractory

metal film including Co may be used as the corresponding metal.

The Examiner has acknowledged that the Mineji reference fails to expressly teach "a ratio of cobalt to silicon is 1 to α (1<α<2)". In an effort to overcome this acknowledged deficiency of the secondarily relied upon Mineji reference, the Examiner has asserted on page 4 of the Office Action that "in the case where the claimed ranges 'overlap or lie inside ranges disclosed by the prior art' a prima facie case of obviousness exists. MPEP 2144.05". The Examiner has asserted that it would have been obvious to use the ratio of cobalt to silicon disclosed in the combined teachings of Imai and Mineji references to arrive at the claimed invention. Applicants respectfully disagree for the following reasons.

The Mineji reference specifically teaches in column 8, lines 44-52 a titanium-rich composition which is expressed as Ti_5Si_3 or TiSi. The Mineji reference however fails to specifically disclose or teach any details of a CoSi film. The Mineji reference very generally discloses in column 10, lines 30-33 that Co may be used as a metal silicide. The Mineji reference however provides no details whatsoever as to what particular phases of CoSi would be usable or exist. Given that Co and Ti are different elements, they should not be presumed to be simply interchangeable as components of various alloys, as apparently asserted by the Examiner. That is, the Examiner has failed to cite any reference or teaching that establishes Co_5Si_3 as an existing or commonly used phase of cobalt silicide. The Examiner's assertion that the Mineji reference teaches or makes obvious a Co_5Si_3 refractory silicide is therefore improper.

Moreover, even assuming for the sake of argument that the Mineji reference could be relied on to establish Co_5Si_3 as an existing or commonly used phase (which Applicants do not concede), Co_5Si_3 would not fall within a ratio of cobalt to silicon that is 1 to α ($1<\alpha<2$), as apparently recognized by the Examiner. Regarding this issue, contrary to the Examiner's assertion as relying on MPEP section 2144.05, the range of ratios of cobalt to silicon as featured in claim 3 do not "overlap or lie inside ranges disclosed by the prior art", or vice-versa.

Particularly, Co_5Si_3 and CoSi as apparently relied upon by the Examiner in view of the Mineji reference, do not have ratios that overlap or lie within the ratio range of claim 3. The ratio of cobalt to silicon for CoSi is 1 to 1, which does not overlap or lie within the ratio of 1 to α ($1<\alpha<2$), as featured in claim 3. That is, for CoSi, $\alpha = 1$, which lies outside and which does not overlap with the claimed range. Similarly, the ratio of cobalt to silicon for Co_5Si_3 is 5 to 3, which does not overlap or lie within the range of 1 to α ($1< \alpha<2$), as featured in claim 3. It should be understood that to fall within the range of ratios set forth in claim 3, a given ratio would need to be in a range greater than a ratio of 1 to 1, and less than a ratio of 1 to 2, but not equal thereto.

Since the cobalt to silicide ratios as relied upon by the Examiner in view of the prior art **do not overlap or lie inside** the ratio range of cobalt to silicide as featured in claim 3, MPEP section 2144.05 is irrelevant. That is, a prime facia case of obvious does not exist. Applicants therefore respectfully submit that the field effect transistor of claim 3 would not have been obvious in view of the prior art as relied upon by the

Examiner taken singularly or together, and that this rejection of claims 3 and 24 is improper for at least these reasons.

Independent claims 7, 11 and 15 each respectively feature a ratio of cobalt to silicon that is 1 to α ($1<\alpha<2$). Applicants therefore respectfully submit that independent claims 7, 11 and 15 also would not have been obvious in view of the prior art as relied upon by the Examiner taken singularly or together, for at least somewhat similar reasons as set forth above with respect to claim 3. Applicants therefore respectfully submit that claims 7, 11, 15, 26, 28, 30, 32 and 34 would not have been obvious in view of the prior art as relied upon by the Examiner taken singularly or together, for at least these reasons.

The field effect transistor of claim 1 features in combination "wherein a contact specific resistance between the metallic silicide layers and the impurity layers is less than $1 \times 10^{-7}\ \Omega - cm^2$, and wherein the semiconductor layer has a thickness of 20 nm". Applicant respectfully submit that the prior art as relied upon by the Examiner does not make obvious these features.

Particularly, an object of the present invention is to provide a field effect transistor having a satisfied drive current usable with microscopic devices. The prior art as relied upon by the Examiner does not disclose or even remotely suggest a field effect transistor having the contact specific resistance and semiconductor layer thickness as featured in claim 1 to realize this object. This should be especially clear since the Examiner has acknowledged on the record that the relied upon prior art

references do not specifically teach the contact specific resistance as featured in claim 1. The Imai reference does not specifically set forth semiconductor or SOI layer thickness. The Mineji reference as secondarily relied upon by the Examiner teaches a device as described with respect to Fig. 3A, including polysilicon film 2 having a thickness of 300 Å (30 nm). Applicant therefore respectfully submits that the field effect transistor of claim 1 would not have been obvious in view of the prior art as relied upon by the Examiner taken singularly or together, and that this rejection of claim 1 is improper for at least these reasons.

Independent claims 5, 9 and 13 each respectively feature a semiconductor layer thickness of 20 nm, in addition to a contact specific resistance between metallic silicide layers and impurity layers less than 1×10^{-7} Ω/cm^2. Applicants therefore respectfully submit that claims 5, 9 and 13 each respectively would not have been obvious in view of the prior art as relied upon by the Examiner taken singularly or together, and that this rejection, insofar as it may pertain to claims 5, 9, 13, 31 and 33, is improper for at least somewhat similar reasons as set forth above with respect to claim 1.

Claims 2, 4, 6, 8, 10, 12, 14 and 16 have been rejected under 35 U.S.C. 103(a) as being unpatentable over the Imai reference in view of the Mineji reference, in further view of Applicants' admitted prior art. Applicants respectfully submit that Applicants' admitted prior art as secondarily relied upon does not overcome the above noted deficiencies of the primarily relied upon prior art. Applicants therefore respectfully submit that these above noted claims would not have been obvious in view of the prior

art as relied upon by the Examiner taken singularly or together, for at least these reasons.

Conclusion

The Examiner is respectfully requested to reconsider and withdraw the corresponding rejections, and to pass the claims of the present application to issue, for at least the above reasons.

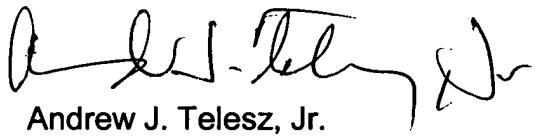
In the event that there are any outstanding matters remaining in the present application, please contact Andrew J. Telesz, Jr. (Reg. No. 33,581) at (571) 283-0720 in the Washington, D.C. area, to discuss these matters.

Pursuant to the provisions of 37 C.F.R. 1.17 and 1.136(a), the Applicants hereby petition for an extension of three (3) months to February 8, 2006, for the period in which to file a response to the outstanding Office Action. The required fee of $1020.00 is attached hereto.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment for any additional fees that may be required, or credit any overpayment, to Deposit Account No. 50-0238.

Respectfully submitted,

VOLENTINE FRANCOS & WHITT, P.L.L.C.



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